

# SWEETWATER 2010

## Habitat Enhancement News

### **Fisheries Enhancement – Parlin, Colorado**

Nestled in the beautiful Quartz Creek valley in Gunnison County, Colorado, is the site of one of SFG's recent conservation accomplishments. This brown trout fishery was experiencing the effects of basin agricultural demands for irrigation, and as a result, available trout and insect habitat inventories were greatly limited in this specific reach of stream. Existing riffle communities were very sporadic and featureless, thus disabling the stream's ability to produce and sustain the insect and algal production required for a productive ecosystem.

Due to the lack of beneficial habitats within this reach, fish populations were comprised mostly of younger age classes, and the occurrence of reproductively mature adult fish a rarity. SFG initiated data collection studies encompassing drainage



Sweetwater Group at work on the Quartz Creek fishery enhancement

hydrology, ecology and biology, and engineered the specific habitat enhancement design required to mitigate all of the fishery's limiting factors and elevate overall reach productivity.

Comprehensive bed-form manipulation combined with systematic structural habitat construction has returned this stream to a prolific and diverse ecosystem, and has set the

benchmark for future resource enhancement and management in this region.

### **Fisheries Enhancement – Evergreen, Colorado**

SFG is pleased to announce the completion of almost 2 miles of stream habitat restoration and enhancement on an intimate reach of Upper Bear Creek, located in Clear Creek County, Colorado. Poor channel width-to-depth ratios, featureless riffle communities, lack of quality spawning regions, as well as inadequate pool depth and diversity, were major contributor inhibiting this stream's ability to be a productive fishery.



Invertebrate collection during SFG habitat evaluation phase



The required gravels and substrates for this Upper Bear Creek fishery were completely encumbered and covered by particle fines due to inconsistent stream flows and channel degradation. Strategic engineering and design enabled the SFG team to restore historical spawning communities as well as identify and construct additional spawning and juvenile rearing habitats.

Through diligent data collection and study efforts, SFG formulated the precise remediation habitat design and construction plan for careful implementation. In addition, SFG utilized our exclusive macroinvertebrate rearing program to introduce and establish freshwater shrimp communities for the proliferation of a sustainable, quality forage.

This reach has been completely transformed and is now well on it's way to becoming a very productive and sound ecosystem. Continued post-construction study efforts will monitor the fishery's progress, and greatly assist the SFG team in preparing and strategizing for the future enhancement and management of adjacent stream reaches.

### **Waterfowl & Wetland Habitat Creation – Sterling, Colorado**

Encompassing nearly 400 acres of agricultural farmland on the eastern plains of Colorado, is the site of one of SFG's exciting waterfowl and wetland development projects. The project area is part of a 6,000-acre working ranch that has been in production for nearly 5 generations.

The ranch family contracted SFG to evaluate the current land use, irrigation and wildlife aspects of the entire property, and produce an enhancement and management plan that allows for the historical farm & ranch practices, while incorporating a productive waterfowl habitat ecosystem.



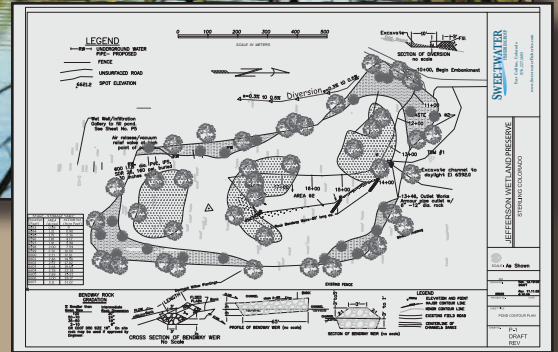
Upper Bear Creek Fishery

Suffering from typical bank degradation, pool-riffle-pool sequence deficiencies and inadequate riparian diversity, this stream presented some unique challenges. Bio-technical stabilization techniques, along with the completion of critical instream habitats enabled SFG to bring this stream into balance with the agricultural and recreational demands.

This assignment required the SFG team to employ a variety of topographic and hydrologic data collections and studies in order to determine the feasibility of creating a functional habitat to attract and sustain migratory fowl and wetland songbird species. Farm and ranch irrigation practices and strategies were re-designed to facilitate crop production requirements, as well as supply the new 400-acre tract designated for wetland development.



Late afternoon on Pintail Estuary - Jefferson Wetland Preserve



Precise planning and design has enabled SFG to transform land historically used as irrigated cropland, into a thriving wetland environment. The creation of a myriad of sloughs, ponds and estuaries has completed 2 of the 3 construction phases, with the final phase of freshwater shrimp and aquatic vegetation planting set to begin.

incredible color, strength and natural forage ability. In addition to the large browns, we have an excellent assortment of stunning rainbows and cutthroat as well.

## FISH & FORAGE

For the 2010 collection of fish, SFG once again has the ultimate in quality while continuing to raise the bar. Last year we held back a large stock of browns to address the numerous requests for exceptionally large browns. These beauties are currently tipping the scales at upwards of seven pounds! These browns, like all of our ten different strains, follow a meticulous organic rearing strategy to ensure

Complimenting our superb fish are the forage bases to match. Often an afterthought, forage is the single most important component next to habitat to ensure a sustainable, high quality fishery. To address this need, SFG offers fathead minnows along with Freshwater Shrimp (*Gammarus lacustris*) to bolster a lagging, mature fishery or accelerate a new property. As always, the SFG fish and forage is in high demand so contact us for your fishery management needs.



SFG Brown Trout (*Salmo*

# SWEETWATER

## FISHERIES GROUP

*Innovation in Fisheries Stewardship and Management*

Fort Collins, Colorado

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### A LOOK AT SFG SERVICES

#### River Restoration:

- Full-scale scientific data collection and CAD based stream design
- U.S. Army Corps and state and federal agency permitting
- Fish and macroinvertebrate habitat improvement
- Structural implementation and construction

#### Fisheries Science:

- Electrofishing population surveys and reporting
- Benthic Macroinvertebrate studies and forage base analysis
- Fishery management and consulting

#### Stream Corridor Analysis:

- Riparian plant species inventory
- Riparian identification & classification
- Riparian condition assessment
- Wetland delineation

#### Stillwater Development:

- Pond engineering and design
- Construction and lining (natural & synthetic)
- Aquatic habitat management
- Custom aeration design & installation

#### Fishery Stocking Services:

- Trophy Trout
  - Brown Trout
  - Brook Trout
  - Rainbow Trout (Multiple Species)
  - Cutthroat Trout
- Forage base stockings
  - Freshwater Shrimp (*Gammarus lacustris*)
  - Fathead Minnows (*Pimephales promelas*)



SFG conducting a fish population survey



Detailed stream corridor analysis



SFG's Freshwater Shrimp nursery